

New Species of *Eugenia* sect. *Racemosae* (Myrtaceae) from the Atlantic Forest, Eastern Brazil

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ABSTRACT. Morphological characters support the description of four new species of *Eugenia* L. sect. *Racemosae* O. Berg (Myrtaceae) from Brazilian Atlantic Forest. The new species are described, illustrated, and compared with putatively related species. They are: *E. brunneopubescens* Mazine from Paraná, *E. capixaba* Mazine from Espírito Santo, *E. costatifructa* Mazine from Bahia and Sergipe, and *E. longibracteata* Mazine from São Paulo.

RESUMO. Quatro espécies novas de *Eugenia* L. sect. *Racemosae* O. Berg (Myrtaceae) da Mata Atlântica são descritas, ilustradas e comparadas com as espécies relacionadas. São elas: *E. brunneopubescens* Mazine do Paraná, *E. capixaba* Mazine do Espírito Santo, *E. costatifructa* Mazine da Bahia e Sergipe e *E. longibracteata* Mazine de São Paulo.

Key words: Atlantic Forest, Brazil, *Eugenia*, IUCN Red List, Myrtaceae.

Eugenia L. is the largest genus in Myrtaceae, with ca. 500 (Holst et al., 2003) to 2000 species (Sanchez-Vindas et al., 2001) distributed from southern Mexico, Cuba, and the Antilles, to Uruguay and Argentina, with a smaller number of species (ca. 60) in Africa (Merwe et al., 2005). Some species with edible fruits have been cultivated in tropical and subtropical regions (e.g., *E. uniflora* L., *E. brasiliensis* Lamarck). *Eugenia* is the genus with the highest number of species of trees in the ombrophilous dense forest surrounding Brazil's Atlantic border, locally called the Mata Atlântica (Oliveira-Filho & Fontes, 2000).

Eugenia sect. *Racemosae* O. Berg can be distinguished by flowers arranged exclusively in racemes and/or panicles, with a distinct axis bearing the flowers in which the pedicel:internode ratio is 2:1 or less. During the preparation of a monograph of *Eugenia* sect. *Racemosae* O. Berg for the Flora Neotropica project, several new species were found, and descriptions of four new species from the Atlantic Forest of Brazil are presented here. Distribution data, illustrations, and comments for the described species are also provided.

1. *Eugenia brunneopubescens* Mazine, sp. nov.

TYPE: Brazil. Paraná: Quatro Barras, Morro Sete, 14 Jan. 1993, J. M. Silva & M. Sobral 1206 (holotype, ESA; isotypes, C, MBM, SPF, W). Figure 1A–C.

Haec species *Eugeniae oblongatae* O. Berg affinis, sed: ab ea foliis 6–9.2 cm (nec 10.5–24.5 cm) longa sine laesionibus circularibus atque racemo tenui distincta.

Tree 5–12 m; young branches moderately pubescent, glabrescent. **Leaf blade** elliptic, 6–9.2 × 2–3.2 cm, coriaceous, without rounded injuries, glabrescent to densely pubescent on abaxial surface, with brown trichomes, glabrescent to moderately pubescent on adaxial surface, with simple and dibrachiate trichomes, apex acuminate, base attenuate, midvein sulcate, moderate to densely pubescent on both surfaces, the lateral veins indistinct or plane on adaxial surface, marginal vein doubled, the inner one 2.5–4 mm from the margin; glandular dots impressed on adaxial surface; petiole 1.2–1.4 cm. **Raceme** axillary, slender with 2 to 5 pairs of flowers, peduncle 5–8 mm, rachis 0.4–1.5 cm, densely pubescent, with brownish trichomes; floral bracts persistent, 1.5–2 mm; pedicel 4–5 mm, densely pubescent, bracteoles ca. 1 mm, basally connate, apex acute, persistent, subglabrous, midvein pubescent, with ciliate margin. **Flower bud** ca. 2 mm diam., sepals 1–1.5 mm, apex rounded, subglabrous to moderately pubescent, with ciliate margin, persistent; petals 4–5 mm, oblong or orbicular, apex obtuse; stamen filaments 4–5 mm, glabrous; hypanthium densely pubescent, style ca. 5 mm, glabrous. **Fruit** globular, 6–9 × 5–8 mm, red, moderately pubescent, surface glandular, not costate.

Distribution and habitat. *Eugenia brunneopubescens* is endemic to Quatro Barras, Paraná State, Brazil, from the Floresta Pluvial de Encosta de Morro and Floresta Montana.

IUCN Red List category. *Eugenia brunneopubescens* is considered Vulnerable (VU D1) according to IUCN Red List criteria (IUCN, 2001).

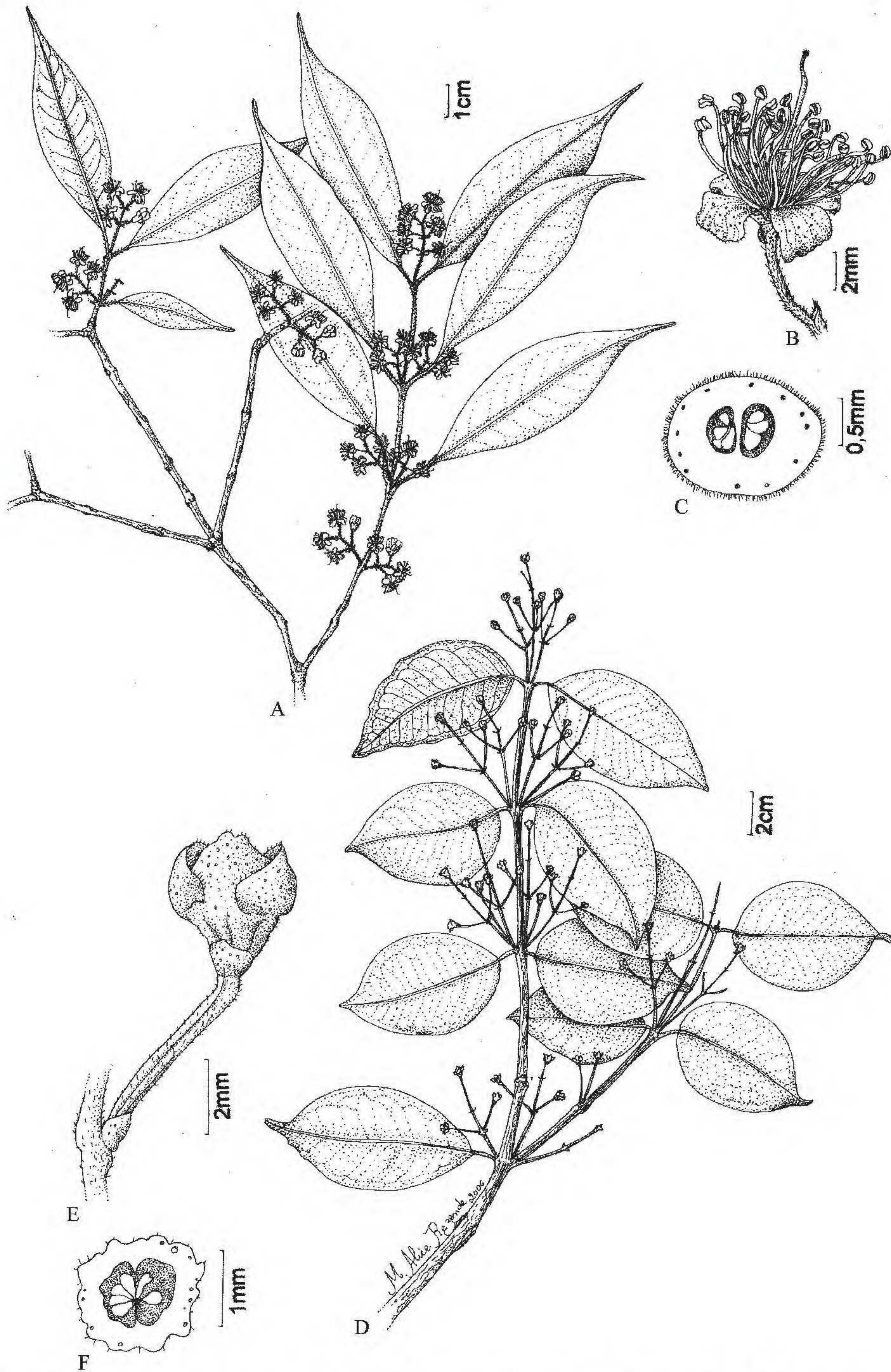


Figure 1. A–C. *Eugenia brunneopubescens* Mazine. —A. Flowering branch. —B. Flower. —C. Medial section of ovary. D–F. *Eugenia costatifructa* Mazine. —D. Flowering branch. —E. Flower bud. —F. Medial section of ovary. A–C drawn from the holotype *Silva & Sobral 1206* (ESA); D–F drawn from the holotype *Pinto et al. 167/82* (CEPEC).

Discussion. *Eugenia brunneopubescens* has been collected only in Quatro Barras, in Paraná State, Brazil. The new species is distinguished by its pubescent hypanthium, persistent floral bracts and bracteoles, and brownish trichomes on the abaxial surface of the leaves and inflorescences. The leaf indument is deciduous. The new species has morphological affinity with *E. oblongata* but can be distinguished from that species by its smaller leaf blades (6–9.2 cm vs. 10.5–24.5 cm long) without rounded injuries and its slender racemes (vs. stouter racemes in *E. oblongata*). Furthermore, *E. brunneopubescens* occurs only in Paraná State, whereas *E. oblongata* has a broader distribution, as it is known from the states of Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo in Brazil.

Paratypes. BRAZIL. **Paraná:** Quatro Barras, Morro Sete, 30 Jan. 1990, O. S. Ribas & V. Nicolack 227 (C, G, MBM, RB, SPF, SPSF); Serra da Baitaca, 1100 m.s.m., 6 Apr. 1990, Y. S. Kuniyoshi & F. Galvão 5519 (MBM).

2. *Eugenia capixaba* Mazine, sp. nov. TYPE: Brazil. Espírito Santo: Linhares, Vale da Lagoa, Juparanã, 17 July 1970, T. S. Santos 959 (holotype, CEPEC; isotype, MBML). Figure 2A–C.

Haec species *Eugeniae pruniformi* Cambessedes affinis, sed ab ea foliis pilis bifurcatis (nec simplicibus) pubescentibus, racemis florum paria 7 ad 13 (nec 2 ad 8) ferentibus rhachidi 2.5–4 cm (nec 0.5–3.5 cm) longa atque alabastris ca. 4 mm (nec 2–2.5 mm) diam. distincta.

Shrub ca. 3 m; young branches densely pubescent, glabrescent. *Leaf blade* elliptic, 9.8–12.3 × 4.7–5.7 cm, chartaceous, sparsely pubescent on both surfaces, trichomes dibrachiate; blade apex shortly acuminate, base acute; midvein sulcate, moderately pubescent on both surfaces; lateral veins slightly sulcate, marginal vein doubled, the inner one ca. 3 mm from the margin; glandular dots indistinct on adaxial surface; petiole 7–9 cm. *Raceme* axillary, subsessile, with 7 to 13 pairs of flowers, peduncle 0–2 mm, rachis 2.5–4 mm, densely pubescent, trichomes ferruginous; floral bracts persistent; pedicel 1–4 mm, densely pubescent, bracteoles ca. 1 mm, free, not basally connate, ovate, apex acute, persistent, densely pubescent. *Flower bud* ca. 4 mm diam.; sepals ca. 2 mm, apex rounded, glabrous to subglabrous, persistent; petals 4–5 mm, elliptic-orbicular, apex obtuse; stamen filaments 4–5 mm, subglabrous; hypanthium very densely pubescent, not costate, style 5–6 mm, subglabrous. *Fruit* not observed.

Distribution and habitat. *Eugenia capixaba* is known by a single flowering collection from 1970,

from Linhares, Espírito Santo State, Brazil, from the Atlantic Forest region, and has evidently not been collected again.

IUCN Red List category. *Eugenia capixaba* is considered Data Deficient (DD) according to IUCN Red List criteria (IUCN, 2001).

Discussion. *Eugenia capixaba* belongs to the group in *Eugenia* sect. *Racemosae* characterized by racemes with ferruginous trichomes, flowers with persistent bracts and bracteoles, and a pubescent hypanthium. It is very similar to *E. pruniformis*, which is also part of this species group. However, *E. capixaba* can be distinguished from *E. pruniformis* by its longer, multi-flowered racemes (rachis 2.5–4 cm long and 7 to 13 pairs of flowers vs. rachis 0.5–3.5 cm long and [2 to]4 to 8 pairs of flowers). Furthermore, the leaves of the new species have dibrachiate trichomes (vs. simple ones).

3. *Eugenia costatifructa* Mazine, sp. nov. TYPE: Brazil. Bahia: Entre Rios, Subaúma, 12°13'S, 37°52'W, 8 Dec. 1982, G. Pinto, J. Arouck, H. Bautista & A. Araújo 167/82 (holotype, CEPEC). Figure 1D–F.

Haec species a congeneris brasiliensibus ad *Eugenia* sect. *Racemosae* pertinentibus foliis coriaceis nitidis base rotundatis, racemo longo, bracteis floralibus persistentibus, hypanthio fructuque costato distinguitur.

Shrub to tree 3–4 m; young branches sparsely puberulous. *Leaf blade* widely elliptic, 6.5–12 × 5.2–7.2 cm, coriaceous, lustrous, moderately puberulous on both surfaces, apex shortly acuminate, base rounded, midvein sulcate, moderately puberulous on both surfaces, lateral veins slightly prominent, marginal vein 2–4 mm from the margin; glandular dots prominent on adaxial surface; petiole 0.8–1.2 cm. *Raceme* axillary, with 2 pairs of flowers, peduncle 0.5–2.3 cm, rachis 0.2–1 cm, glabrous to sparsely puberulous, with white trichomes; floral bracts persistent, pedicel 0.6–1.4 cm, glabrous to sparsely puberulous, bracteoles ca. 1 mm, basally connate, cordate, persistent. *Flower bud* 3–4 mm diam.; sepals 1.5–2 mm, apex rounded, subglabrous, persistent; petals not observed; stamen filaments 3–4 mm, subglabrous; hypanthium subglabrous to sparsely puberulous, costate; style ca. 5 mm, subglabrous. *Fruit* globular, 2–3.5 × 2.2–3.3 cm, yellow to orange, subglabrous, surface costate, glandular.

Distribution and habitat. *Eugenia costatifructa* grows in restinga vegetation from the Brazilian states of Bahia and Sergipe.

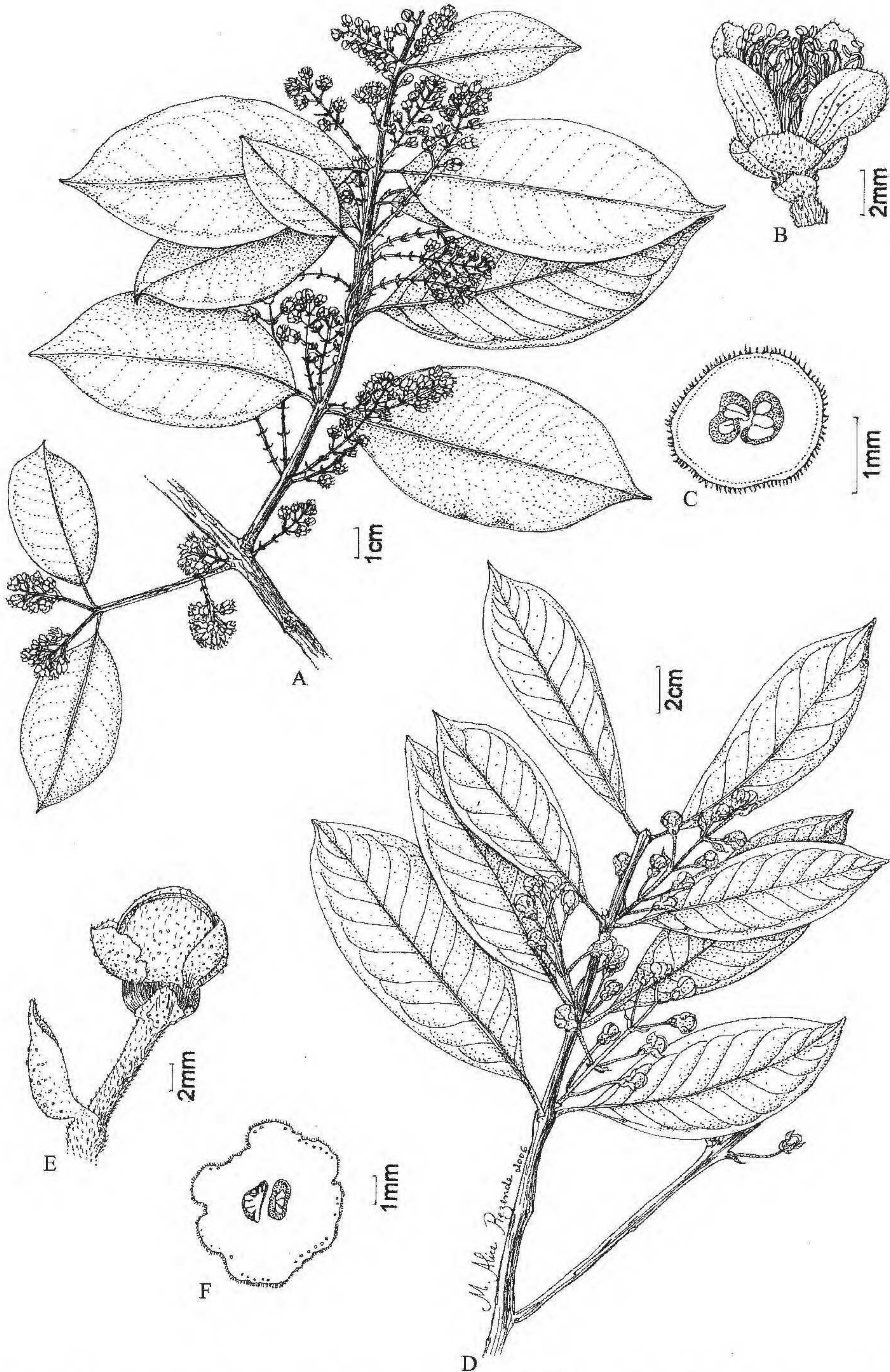


Figure 2. A–C. *Eugenia capixaba* Mazine. —A. Flowering branch. —B. Flower. —C. Medial section of ovary. D–F. *Eugenia longibracteata* Mazine. —D. Flowering branch. —E. Flower bud. —F. Medial section of ovary. A–C drawn from the holotype Santos 959 (CEPEC); D–F drawn from the paratype Ferretti *et al.* 152-A (ESA).

IUCN Red List category. *Eugenia costatifructa* is considered Vulnerable (VU Blac[iii]) according to IUCN Red List criteria (IUCN, 2001).

Discussion. This new species has long racemes and flowers with persistent floral bracts. The principal characters of *Eugenia costatifructa* are the flowers with costate hypanthium and fruits also with a costate surface. The leaves are coriaceous and shiny, with a rounded base.

Paratypes. BRAZIL. **Bahia:** Mata de São João, Sauípe, Litoral Norte, 12°31'S, 38°17'W, 13 June 2000, M. L. Guedes, E. M. Silva & L. B. Silva 7028 (CEPEC); Entre Rios, Subaúma, 8 Dec. 1982, J. Arouck, H. Bautista, A. Araújo & G. Pinto 222 (CEPEC, ICN); 12°13'44"S, 37°47'56"W, 19 Feb. 1980, P. A. Adonias 236 (CEPEC). **Sergipe:** Santo Amaro das Brotas, restinga após o rio Pomonga, 19 Jan. 1992, C. Farney, R. A. Silva & S. B. Santos 2905 (RB).

4. *Eugenia longibracteata* Mazine, sp. nov. TYPE: Brazil. São Paulo: Cunha, Estação Experimental da Serra do Mar, 23°15'25.5"S, 45°02'32"W, 14 Dec. 1996, A. R. Ferretti, A. Vanini, A. G. Nave, F. M. Peneireiro, R. R. Rodrigues, V. C. Souza, J. Y. Tamashiro, N. M. Ivanauskas & J. P. Souza 83 (holotype, ESA; isotype, UEC). Figure 2D–F.

Haec species ab *Eugenia mosenii* (Kausel) Sobral racemi rhachidi longa atque bracteis floralibus 6–10 mm (nec 2–3.5 mm) longis caducis ante anthesim differt.

Tree ca. 4 m, branches sparsely puberulous. *Leaf blade* elliptic-obovate or elliptic-oblong, 10–15.8 × 4.1–5.5 cm, chartaceous, subglabrous to sparsely puberulous on adaxial surface, subglabrous to sparsely pubescent on abaxial surface, with simple trichomes, blade apex contracted-acuminate, base attenuate, midvein slightly sulcate, subglabrous to sparsely puberulous on adaxial surface, subglabrous to sparsely pubescent on abaxial surface, lateral veins prominent, marginal vein doubled, the inner one 3–5 mm from the margin; glandular dots slightly impressed to slightly prominent on adaxial surface; petiole 1.5–1.7 cm. *Raceme* axillary, sessile, with 5 to 7 pairs of flowers, rachis 4.5–7.5 cm, densely pubescent, with brownish trichomes; floral bracts deciduous before anthesis, 0.6–1 cm, pedicel 0.7–2.2 cm, densely pubescent, bracteoles 3–3.5 mm, free, not basally connate, apex acute, sparsely pubescent. *Flower bud* 5–8 mm diam., sepals 4–6 mm, apex rounded, pubescent, persistent; petals not observed; stamen filaments not observed; hypanthium very densely furfuraceous, indumentum more evident than indumentum of the calyx lobes, bracteoles, rachis, and pedicel, surface not costate, style not observed. *Fruit* not observed.

Distribution and habitat. *Eugenia longibracteata* is only known from Cunha, in São Paulo State, Brazil, from Atlantic Forest.

IUCN Red List category. *Eugenia longibracteata* is considered Vulnerable (VU D1) according to IUCN Red List criteria (IUCN, 2001).

Discussion. *Eugenia longibracteata* is known from two collections, both with only floral buds, from Cunha, in São Paulo, Brazil. Its floral bracts are caducous, dehiscing before anthesis. The new species has morphological affinity with *E. mosenii*, a species that occurs in Atlantic Forest in São Paulo and Paraná. *Eugenia longibracteata* can be distinguished from *E. mosenii* by its caducous bracts that dehisce before anthesis (vs. bracts persistent on the fruit or deciduous after anthesis), long racemes with rachis 4.5–7.5 cm long (vs. short racemes, generally reduced to fascicles, with rachis 0–0.8 cm long), and long floral bracts (0.6–1 cm vs. 2–3.5 mm long).

Paratype. BRAZIL. **São Paulo:** Cunha, Estação Experimental da Serra do Mar, Morro da Marlene, 23°12'44"S, 45°02'01"W, A. R. Ferretti, A. Vanini, A. G. Nave, F. M. Peneireiro, R. R. Rodrigues, V. C. Souza, J. Y. Tamashiro, N. M. Ivanauskas & J. P. Souza 152A (ESA, UEC).

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